REMARKS

Reconsideration is respectfully requested.

Claims 5 and 21 have been cancelled.

No claims have been withdrawn.

No claims have been added.

Claim 1 through 4 and 6 through 20 remain in this application.

Entry of the above amendments is courteously requested in order to place all claims in this application in allowable condition and/or to place the non-allowed claims in better condition for consideration on appeal. More specifically, claim 1 has been amended to include the requirements of claim 21, which was previously added and depended from claim 1, and therefore it is submitted that claim 1 does not present any issues that require additional searching or consideration, as these requirements were previously before the Examiner.

The Examiner's rejections will be considered in the order of their occurrence in the Office Action.

Paragraphs 2 through 31 of the Office Action

Claim 1 through 4, 6, and 8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Choquier et al. (hereinafter referred to as "Choquier") US Patent No. 5774668, in view of "A Distributed Resource Management Architecture that Supports Advance Reservations and Co-Allocation" by Ian Foster (hereinafter referred to as "Foster").

Claims 7, 9 and 10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Choquier et al.(Choquier) US Patent No. 5774668, in view of "A Distributed Resource Management Architecture that Supports Advance Reservations and CO- Allocation" by Ian Foster (Foster), as applied to claim 1, and further in view of Hubbard

(hereinafter referred to as "Hubbard") US Patent No. 6654783.

Claims 11 through 20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Choquier et al.(Choquier) US Patent No. 5774668, in view of "Economic-based Distributed Resource Management and Scheduling for Grid Computing" by Rajkumar Buyya (hereinafter referred to as "Buyya").

Claim 1

Turning first to claim 1, it has been amended to include the requirements of claim 21 (which previously depended from claim 1, and therefore claim 1 requires, in part, that "the level of security includes a type of access permitted to the grid computer".

It is noted that, despite claim 21 being presented in the previous amendment submitted August 18, 2008, the final Office Action does not mention claim 21 or address the requirements of claim 21. While the Office Action does not indicate that claim 21 is considered to include patentable subject matter, the rejection of the claims also does not provide any basis for rejecting claim 21 (which, of course, has now been incorporated into claim 1). It is respectfully requested that, if the rejection of claims is maintained, that any future Office Action include the basis (if any) for rejecting a claim including this requirement.

It is submitted that the requirement of claim 1 that "the level of security includes a type of access permitted to the grid computer" is not disclosed by the cited art. None of the cited documents mentions or suggests the "type of access" as being a factor in the level of security of job performance on a grid computer relative to other grid computers of a computing grid. It is therefore submitted that claim 1, with the requirement of (previous claim 21, is allowable over the cited art.

Further, claim 1, as previously amended, requires that "the at least one job performance factor in the file includes a level of security of job performance on the grid computer relative to other grid computers of the computing grid".

With respect to this requirement of claim 1, it is conceded in the rejection that:

> Choquier do not specifically disclose wherein the at least one job performance factor in the file includes a level of security of the job performance on the grid computer relative to other grid computers of the computing grid.

It is then asserted that:

> However Foster teaches wherein the at least one job performance factor in the file includes a level of security of the job performance on the grid computer relative to other grid computers of the computing grid (page 31, Left Column, lines 23-35, "The agent must now discover computational and bandwidth resources that can collectively provide desired end-to-end QoS and security policies, perhaps because data is proprietary.").

Looking to the Foster document at page 2 (left column, lines 23 through 41) that is relied upon in the rejection, it states:

> The agent must now discover computational and bandwidth resources that can collectively provide desired end-to-end QoS. Applications developed in the context of the current Globus system achieve this goal—for co-allocation—by using exhaustive search [5]. In an advance reservation environment, we can consider a range of future times, and so the number of candidate resources can be larger; hence, efficient search heuristics will typically be required. For example, we can consider each potential data cache in turn, consulting for each the information service to locate a supercomputer that can deliver the required computational power. At this point the agent may need to consider issues such as acceptable use and security policies, perhaps because data is proprietary. Then, the agent attempts to reserve both supercomputer nodes and network bandwidth between the supercomputer and the visualization engine. If both reservations succeed, the agent can proceed to discover and reserve a network link between the supercomputer and the data cache.

However, the above text of Foster only mentions that "the agent may need to consider issues such as acceptable use and security policies", without making any other statements, to provide one of ordinary skill in the art with further information, regarding what is meant by "security policies". It is submitted that this vague statement does not disclose to one of ordinary skill in the art the more specific requirement of claim 1 of "a level of security of job performance on the grid computer *relative to other grid computers* of the computing grid". In particular, it is submitted that this general statement in the Foster document does not disclose to one of ordinary skill in the art that "the level of security includes a type of access permitted to the grid computer," as is also required by claim 1.

It is further alleged in the rejection of the Office Action that:

> It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Foster into the method of Choquier to have security level as job performance factor. The modification would have been obvious because one of the ordinary skills of the art would utilize different performance factor based on the users need to perform the job and that can include security level of the grid computer.

However, nothing in the line of argument of the rejection has explained why one of ordinary skill in the art would recognize that the "security level" (if that is indeed what Foster discloses) is a "performance factor" "need[ed] to perform the job", as alleged in the portion of the rejection text set forth above. Moreover, turning back to the parts of the Choquier patent that is relied upon in the rejection, it is noted that the factors discussed in the Choquier patent only regard capacity considerations, and nothing is considered that would lead one of ordinary skill in the art to look to Foster for a security consideration. The line of argument in the rejections broadly groups "security level" as a factor intended by Choquier, but Choquier only discusses factors that appear to directly affect capacity. See, for example, the portion of Choquier relied upon at col. 2, lines 56 through 63 (emphasis added):

> In the preferred embodiment, the Gateway microcomputers identify the application servers in the service groups and determine the loads of the application servers by accessing a locally-stored service map. The service map contains information about every application server of the system. For example, for each application server, the service map indicates the names of the server applications running on the application server, the current processing load of the application server, and the overall processing power (in the form of a static CPU INDEX benchmark) of the application server.

Nothing here has any suggestion that the information on the servers might benefit from including "security level" as this has no apparent affect on the "loads" that is the focus of the elements discussed for the Choquier system.

It is therefore submitted that one of ordinary skill in the art, considering the disclosures of Choquier, would not look to Foster, and the selected elements of Foster, and make the allegedly obvious combination.

Claim 6

Further, claim 6 requires "the at least one job performance factor includes an amount of processor time utilization to reserve for processing local jobs on the grid computer". In the rejection of claim 6, it is alleged that this requirements is disclosed in the Choquier patent at col. 10, line 66 through col. 11, line 1, which states:

> Each local map 140 contains a CPU LOAD value and a CPU INDEX value for the respective server 120. The CPU LOAD indicates the current load of the server 120.

However, it is submitted that the Choquier patent does not disclose the requirements of claim 6. More specifically, claim 6 requires that the at least one job performance factor includes "an amount of processor time utilization *to reserve* for processing *local jobs* on the grid computer" (emphasis added). In contrast, the Choquier patent discusses "a current load" without regard to the source or origination of the "load" that is being discussed, and clearly does not suggest to one of ordinary skill in the art that there is any reservation of capacity for "local jobs". It is submitted

that one of ordinary skill in the art would understand that the Choquier patent is discussing an overall load on the CPU, without distinction based upon the origin of the load, and one of ordinary skill in the art would not recognize any reservation of processor time utilization, particularly based upon the origin of the task. It is therefore submitted that the Choquier patent does not disclose, and would not lead one of ordinary skill in the art to, the invention claimed in claim 6.

The Response to Arguments portion of the final Office Action asserts that:

> As to point (1), applicant supports his argument mentioning that Choquier teaches "a current load" without regard of the origination of the load. Examiner respectfully disagrees with the applicant. The claimed limitation is broad and does not specifically disclose what is a "local job" and the origination of the local job. Examiner interprets the limitation as the current loads on the system as it is already loaded on the system it is the local job on the system. Choquier teaches current load (local job) on the server that is using the CPU and reserved for the server and the rest ofthe CPU is available for job allocation (col 10, lines 66-67 through col 11, lines 1-5).

However, even if the term "local job" is interpreted to include "the current load", Choquier does not disclose any "amount of processor time utilization *to reserve* for processing *local jobs*", as there is nothing in Choquier that discloses to one of ordinary skill in the art that there is any reservation of "processor time utilization" as required by the language of claim 6. The Remarks simply fail to address this requirement of claim 6, and appear to condense the claim language to simply require that the map of Choquier include "the current load" on a server, rather than the full requirement of "an amount of processor time utilization to reserve for processing local jobs on the grid computer".

Claim 7

Also, claim 7 requires that "the at least one job performance factor includes an operating time window for performing grid jobs on the grid

computer". It is conceded in the rejection that "Choquier does not specifically disclose at least one job performance factor includes an operating time window for performing grid jobs on the grid computer" and it is then alleged in the rejection that:

> However, Hubbard teaches at least one job performance factor includes an operating time window for performing grid jobs on the grid computer (col 10, lines 30-33).

It is then contended that:

> It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Hubbard into the method of Choquier to have an operating time window as job performance factor. The modification would have been obvious because one of the ordinary skills of the art would have a specific window to be able to get the best result according to users need to perform the job.

However, it is submitted that the prior art, and particularly the Hubbard patent, does not disclose or suggest that "the times when the agent may utilize system resources" (as stated in the portion of Hubbard which the Examiner has relied upon in the rejection) provides the benefit of getting "the best result according to users need to perform the job" (which is the allegation made in the Examiner's line of argument of the rejection, and not by the undersigned). More specifically, it is not clear how the time control of Hubbard would lead to the highly vague and generalized benefit of "get[ting] the best result" for the "users need to perform the job". It is therefore submitted that one of ordinary skill in the art would not make the combination of features suggested in the rejection upon this basis.

Claim 9

Claim 9 requires that "creating the file additionally comprises including at least one local operating condition for the grid computer in the file, and wherein the at least one local operating condition recorded in the file comprises an indication of *at least one time period of optimal electricity rate* for operating the grid computer". The rejection of claim 9

points to the Hubbard patent in allegedly obvious combination with Choquier, and contends that this requirement is disclosed in Hubbard at col. 16, lines 25 through 35, table 1 of Hubbard, and col. 10, lines 31 through 32. However, none of these portions of the Hubbard make any mention of any electricity rate, especially in consideration of a time period for performing a grid job. While Table 1 of Hubbard mentions may factors, the electricity rate is not one of them. Other portions (such as at col. 16, lines 25 through 35) mention the goals of the Hubbard system in broad terms, but these broad terms do not disclose the claimed subject matter.

In the Response to Arguments portion of the final Office Action, it is alleged that:

> As to point (3), applicant supports his argument mentioning that Hubbard mentions a many factors in table I but electricity rate is not one of them. Examiner respectfully disagrees with the applicant. Hubbard teaches utilizing the system resources when the system is idle in the time window of 12 am to 6 am, when the system is idle during the night time the system is in standby mode or low power mode and the system electricity consumption is optimal for operating the computer(col 10, lines 31-32). Moreover in table 1 Hubbard teaches many factor for utilization that includes ACPI (Advanced Configuration of Power Interface), Full-on power mode, Stand-by Mode, Video logic power down, HDD, FDD, FDC power down and many other power option factors that are all related to electricity consumption of the system (col 16, lines 25-35; table 1).

Looking to the referenced portion of Hubbard at col. 10, lines 31 through 32, it states "the times when the agent may utilize system resources (e.g., only between 12 to 6 am, or only when the system is idle". However, there is nothing here to communicate that this time frame has anything to do with electricity rates (that appears to be interpretation on the part of the patent Office), and would appear to one of ordinary skill in the art as being more connected to the time of least load on the computer ("or only when the system is idle", rather than electrical cost. Further, simply because the Hubbard patent mentions other factors that are tangentially related to power

usage does not lead one of ordinary skill in the art to understand that there is any suggestion that the cost of power is to be a factor.

Claim 11

Claim 11 requires "sending, by the grid manager, the job performance file with the grid job to one of the grid computers". It is conceded in the rejection of the Office Action that "Choquier does not specifically disclose sending the job performance file with the grid job to one of the grid computers", and then asserts that:

> However Buyya teaches sending the job performance file with the grid job to one of the grid computers (page 48, lines 28-29; lines 30-31; lines 35-37)
>
> It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Buyya into the method of Choquier to send the performance file with the job to the grid computer. The modification would have been obvious because one of the ordinary skills of the art would have send the job file with the job to be able to monitor the parameters on the executing system platform and make better load balancing decision.

Looking to the Buyya document at the referenced portion, it states:

> Nimrod-G is a tool for automated modeling and execution of parameter sweep applications (parameter studies) over global computational Grids [100][98][103j. It provides a simple declarative parametric modeling language for expressing parametric experiments. A domain expert can easily create a plan for a parametric experiment and use the Nimrod system to submit jobs for execution. It uses novel resource management and scheduling algorithms based on economic principles. Specifically, it supports user-defined deadline and budget constraints for schedule optimisations and manages supply and demand of resources in the Grid using a set of resource trading services [99].
>
> Nimrod-G provides a persistent and programmable *task-farming engine* (TFF,) that enables "plugging" of user-defined schedulers and customised applications or problem solving environments (e.g., ActiveSheets) in place of default components. The task-farming engine is a coordination point for processes performing resource trading, scheduling, data and executable staging, remote execution, and result collation. In the past, the major focus of our project was on creating *tools* that help domain experts to compose their legacy serial applications for parameter studies and run them on computational clusters and manually managed Grids [21][18]. Our current focus is on

> the use of economic principles in resource management and scheduling on the Grid in order to provide some measurable quality of service to the end user. Real-world economic methods provide incentives for owners to contribute their resources lo markets, and it also provides consumers with a basis for trading the quality of service they receive against cost.

However, it is submitted that this portions of the Buyya document speaks in broad terms of operation, and more importantly does not disclose to one of ordinary skill in the art the requirements of "sending, by the grid manager, the *job performance file* with the grid job to one of the grid computers".

In the response to Arguments portion of the Office Action, it is asserted that:

> As to point (4), applicant supports his argument that Buyya fails to teach the limitation "sending, by the grid manager, the job performance file with the grid job to one of the grid computer" without showing the difference between the claimed limitation and the reference cited. Examiner respectfully disagrees with the applicant. Applicant does not provide any support to the argument to show the difference or analysis of the reference. Buyya teaches a grid manager (Nimrod-G) that is being used to submit jobs for execution. The grid manager (Nimrod-G) provides the task farming engine that enables "plugging"(performance file with job) of a user defined schedules and problem solving environment. The custom farming engine enables the execution of the job, scheduling and resource reservation based on the performance file (page 48, lines 28-37).

Despite what is alleged here, the Buyya document does not disclose a "job performance file" that is sent with a grid job to the grid computer. Buyya discusses "enables "plugging" of user-defined schedulers and customised applications or problem solving environments (e.g., ActiveSheets) in place of default components", but there is nothing in this statement that discloses or necessitates that a job performance file is *sent* to the grid computer with the grid job, as required by the claim. Moreover, while it appears that line of argument in the rejection is based upon the speculation that something approximating the job performance file is sent to the resources, but it is

submitted that "user-defined schedulers", etc. could be implemented without sending a job performance file with the grid job to the grid computer.

It is therefore submitted that the cited patents, and especially the allegedly obvious combinations of Choquier and Hubbard and Choquier and the "Economic-Based Distributed Resource Management and Scheduling for Grid Computing" document set forth in the rejection of the Office Action, would not lead one skilled in the art to the applicant's invention as required by claims 7 and 9 through 11. Further, claims 12, 15, 17 and 18, which depend from claim 11, claims 13, 14 and 20, which depend from claim 12, claim 16, which depends from claim 15 and claim 19, which depends from claim 13 also include the requirements discussed above and therefore are also submitted to be in condition for allowance.

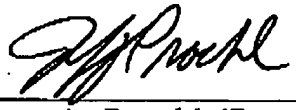
Withdrawal of the §102(b) and §103(a) rejections of claims 1 through 4 and 6 through 20 is therefore respectfully requested.

CONCLUSION

In light of the foregoing amendments and remarks, early reconsideration and allowance of this application are most courteously solicited.

Respectfully submitted,

WOODS, FULLER, SHULTZ & SMITH P.C.



Date: Feb. 4, 2009

Jeffrey A. Proehl (Reg. No. 35,987)
Customer No. **40,158**
P.O. Box 5027
Sioux Falls, SD 57117-5027
(605)336-3890 FAX (605)339-3357